IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

---

Ex Parte LARSON et al.

---

Application for Patent

Filed: October 14, 2003

Serial No.: 10/685,739

Group Art Unit 1792

Examiner Rudy Zervigon

For:

UNIFORM ETCH SYSTEM

---

# SUPPLEMENTAL REPLY BRIEF

---

Beyer Weaver LLP
P.O. Box 70250
Oakland, CA 94612-0250
Attorneys for Appellant

CERTIFICATE OF EFS-WEB TRANSMISSION

I hereby certify that this correspondence is being transmitted electronically through EFS-WEB to the Commissioner for Patents, P.O. Box 1450 Alexandria, VA 22313-1450 on **February 26, 2008**.

Signed: /Lydie Fitzsimmons/
Lydie Fitzsimmons

TABLE OF CONTENTS

1. **INTRODUCTION** ..... 1

2. **STATUS OF AMENDMENTS** ..... 1

3. **GROUNDS FOR REJECTION** ..... 1

4. **ARGUMENT** ..... 2

5. **EVIDENCE APPENDIX (EXHIBIT A)** ..... 11

## 1. INTRODUCTION

This Supplemental Reply Brief is in response to the Supplemental Examiner's Answer mailed December 27, 2007. The Appeal is hereby maintained.

## 2. STATUS OF AMENDMENTS

No amendments were filed subsequent to final rejection. All amendments previously filed have been entered.

## 3. GROUNDS FOR REJECTION

A. The rejection of claims 1-3, 17, 19, and 20 under 35 U.S.C. 102(b) as being anticipated by Motoda et al. (U.S. 5,496,408).

B. The rejection of claims 4-7, 9, 10, 12 and 15 under 35 U.S.C. 103(a) as being unpatentable over Motoda et al. (U.S. 5,496,408) in view of Shinozuka et al. (U.S. 6,315,858).

C. The rejection of claims 8, 11, 13, 14, 17 and 18 under 35 U.S.C. 103(a) as being unpatentable over Motoda et al. (U.S. 5,496,408) and Shinozuka et al. (U.S. 6,315,858) in view of Ohmi et al. (U.S. 5,313,982).

D. The rejection of claims 1-7, 9, 10, 12, 15, 17, 19, and 20 under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Motoda et al. (U.S. 5,496,408)in view of Shinozuka et al. (U.S. 6,315,858),

E. The rejection of claims 8, 11, 13, 14, 17, and 18 under 35 U.S.C. 103(a) as being unpatentable over Motoda et al. (U.S. 5,496,408) and Shinozuka et al. (U.S. 6,315,858) in view of Ohmi et al. (U.S. 5,313,982) remain unchanged.

All grounds are to be reviewed on Appeal.

## 4. ARGUMENT

In Response to the Supplemental Examiner's Answer of December 27, 2007, the Applicant presents this Supplemental Reply Brief. This Supplemental Brief was necessitated by new grounds for rejection presented in the Supplemental Examiner's Answer.

### A. The Rule 132 Declaration

The Examiner argues in the Supplemental Answer that "The Examiner's rationale for declaring the January 13, 2006 37 CFR 1.132 affidavit insufficient to overcome the pending rejections are believed to be sustainable for at least the reasons already set forth by the Examiner in his March 9, 2006 office action. Further, the Examiner emphasizes that his rejection of claims 1-3, 17, 19, and 20 are 102(b) bar rejections as *anticipated* by Motoda;Takashi et al. (US 5,496,408 A). As such, an affidavit is ineffective in overcoming the rejection of said claims." As to the first sentence of this response, the Board has apparently already agreed that the Examiner's reasoning set forth in previous office actions was not effective in establishing why the affidavit would be insufficient to overcome the pending rejections. Indeed, the entire reason the Examiner has supplied a Supplemental Answer is to purportedly remedy the defects of prior rejections. As such, Applicant will not address the prior rejections in this Supplemental Reply Brief.

As to the second sentence, Applicant is unable to understand the meaning of this sentence as it appears not to be a complete sentence. Reading it in light of the third sentence, the Applicant can only guess that the Examiner is somehow arguing

that because this is a 35 U.S.C. 102(b) rejection, an affidavit cannot overcome the rejection. This, however, is incorrect. The affidavit in question is not a swearing-behind affidavit under Rule 131, but rather a declaration establishing what one of ordinary skill in the art understands the term "fixed orifice" to mean. Such a declaration can and does overcome the 102(b) rejection as it establishes that the prior art in question does not teach all of the elements of the claim, and hence there is no anticipation (or in the case of the 35 U.S.C. 103 rejections, there is no obviousness). As such, Applicant respectfully requests that the board disregard the Examiner's argument that the affidavit cannot overcome an anticipation rejection.

The Examiner goes on to argue that "the totality of Applicant's evidence in the affidavit is an assertion of a 'term of art' in affiant's 'area of work' for 'fixed orifice.' Such evidence is believed to be opinion evidence (716.01(b)) whose foundation is strictly based on affiant's narrow 'area of work'." Applicant strongly disagrees with this argument for several reasons. First of all, the Examiner is apparently applying the wrong standard to the evidence at hand. The Examiner cites M.P.E.P. 716.01(b) as allegedly discussing "opinion evidence," which the Examiner equates to the evidence in the declaration. However, M.P.E.P. 716.01(b) discusses evidence of secondary indicia of non-obviousness, and the weight to apply to such evidence. The evidence in the declaration, however is **not** secondary indicia of non-obviousness. Rather, the declaration establishes evidence of **primary** indicia of **non-anticipation**. This is not opinion evidence of long-felt need or commercial success, which are secondary indicia of non-obviousness. This is evidence related to the interpretation of a claim term, evidence that requires a deep and thorough analysis and cannot simply be dismissed as "opinion evidence" and forgotten as the Examiner is attempting to do.

Applicant also strongly disagrees with the Examiner's argument that the area of work established in the declaration is "narrow." The Examiner goes on to argue that the "ordinary skill in the art as not necessarily the strict and narrow field of the "SAE Aerospace Applied Thermodynamics Manual' that is necessarily incredibly distant in practice, procedure, and principles to "Applicant's titled invention 'Uniform Etch System". Indeed, the 'ordinary skill in the art' is the field of etching and deposition as supported by the class definition of 156 and 118 respectively. Those 'of ordinary skill in the art' in the field of Applicant's endeavor, are artisans in etching, not in the aerospace industry. Applicant does not believe that the declaration establishes such a narrow area of work. The Examiner apparently has taken one sentence of the declaration out of context and used it to incorrectly label the entire declaration as evidence from one of ordinary skill in the aerospace industry. Careful reading of the declaration, however, makes clear that this is not the case.

Specifically, the declaration establishes that the declarant works for Lam Research Company, a company specializing in plasma etching. The declaration also establishes that the declarant performs "mechanical design and analysis of structural, thermal, materials, fluid and gas flow, and vacuum **technology on semiconductor industry wafer dry etch and transport systems**." These all indicate that the area of work the declarant refers to involves the etching of semiconductor wafers. The declaration goes on to state that "In my area of work [the etching of semiconductor wafers], the phrase 'fixed orifice' is a term of art referring to a fixed flat plate body, containing a precision fixed geometry aperture, mounted within a tubing system. An example of such a device is described in figure 3G-36 on page 407 in the SAE Aerospace Applied Thermodynamics Manual." The reference to the Aerospace

publication is not provided as evidence of the scope of the declarant's area of work. Rather, as it clearly states, it is merely used to show an example of a device. Other areas of the declaration establish the meaning of the term, the reference to the Aerospace publication is merely used to show an example of a device encompassed by the term.

Furthermore, while the publication does contain the term "Aerospace" in its title, it is in fact a thermodynamics manual and the example in question is a thermodynamics example, not an aerospace example. Thermodynamics is obviously an area the science that touches on many industries. The fact that aspects of thermodynamics touch upon both the aerospace and the etching industries only illustrates the far reaching scope of the example in question. Nevertheless, Applicant does not believe that the example from the Aerospace publication is necessary for proper understanding of the term "fixed orifice" as known in the etching industry. Such a fact is established by other areas of the declaration.

As such, Applicant believes that the Declaration makes clear that the declarant's area of work is not, in fact, "narrow" as the examiner suggests.

Furthermore, the Examiner argues that "[t]he decision to err on the side of the broadest reasonable interpretation is supported by ab initio examination procedures because it is well establishes that claim terms are issued their 'plain meaning' according to MPEP 2111.01." The Examiner, however, has done way more than simply err on the side of the broadest reasonable interpretation. Rather, the Examiner has ignored all evidence contrary to the broadest possible (yet unreasonable) interpretation. The Examiner has also presented evidence to purportedly back up his position that is misleading and irrelevant (such as attempting to define the term "fixed

orifice" by merely using a dictionary definition of the term "orifice" and ignoring the term "fixed"). This does not satisfy MPEP 2111.01. This section of the MPEP does not provide the Examiner with the license to select the broadest interpretation of a claim while ignoring evidence in the Specification and those of ordinary skill in the art. This section does not permit the Examiner to have carte blanche to interpret claim terms without reasoned analysis and examination of all the evidence of record in the case. As such Applicant continues to maintain that the evidence suggests that the claim term at issue is known to one of ordinary skill in the art to be defined as a "fixed plate flat orifice."

**B. <u>The New 35 U.S.C. 103(a) rejection</u>**

The Examiner has presented a new rejection of claims 1-3 and 20 based on the combination of Motoda and Shinozuka. Specifically, the Examiner argues that Shinozuka teaches a "process gas delivery apparatus" including "an equivalent flat plate fixed orifice (39, Figure 5, 6) and a tuning gas system (column 4; lines 51-58) including mass flow controllers (43, 49, Figure 2) for process gas delivery and control" and that it would be obvious to combine Shinozuka with Motoda. However, as pointed out in the Appeal Brief, Shinozuka's iris valve is not a fixed orifice. Rather, it is a variable orifice.

Specifically, the Examiner utilizes a definition of "orifice" from a Collegiate Dictionary to define a fixed orifice as "an opening through which something may pass". In doing so, however, the Examiner ignores the "fixed" portion of the term "fixed orifice". A fixed orifice can be contrasted to an orifice that is "variable." A fixed orifice would be an orifice whose opening size is not adjustable, or at least not

easily adjustable. A variable orifice, on the other hand, would be one whose opening size could be easily adjusted.

An iris valve is variable, in that the size of its opening can be easily adjusted, much like the iris of a human eye can dilate in low light conditions. This variable nature of the iris introduces contaminants and complexities into the system. Indeed, the Examiner appears to agree that the iris valve is variable (See Final Office Action, page 12). The Examiner argues, however, that once the iris valve is set at a particular opening size, it becomes "fixed." As will be discussed in more detail below, however, this renders the term "fixed" meaningless.

In a prior amendment, the Applicant pointed out that the iris valve referred to in Shinozuka is variable, not fixed. In response to this argument, the Examiner states: "because Shinozuka's 'variable orifice' iris vale has the capacity of operating as a 'fixed orifice', by setting its opening area and maintaining it constant, then Shinozuka's 'variable orifice' iris valve is capable of performing the intended use and thus provides a 'fixed orifice.'" Applicant respectfully disagrees. Merely because a variable orifice can be placed in one position for a long time, it does not change the orifice into a fixed orifice. Rather, a variable orifice is one whose internal size can easily be adjusted, while a fixed orifice is one whose internal size cannot easily be adjusted. Shinozuka's iris valve can alter its internal size in order to change air flow, and as such is not fixed. A fixed orifice, as provided by Applicant's definition, must provide a specific resistance, not many different resistances based upon the whim of the operator.

Applicant also notes that the Examiner's interpretation of the term "fixed orifice" renders the term "fixed" nearly meaningless. Specifically, since the Examiner

believes that an orifice that can easily alter its internal size such as an iris valve constitutes a "fixed orifice", that means that the Examiner believes that a variable orifice is "fixed" merely because it can be set at a particular size at some instant in time. With such a broad interpretation, that would mean that the term "fixed" is meaningless because every orifice in the universe would fit the Examiner's definition of "fixed orifice."

The Federal Circuit recently dealt with a similar issue in Curtiss-Wright Flow Control Corp. v. Velan, Inc., 438 F.3d 1374 (Fed. Cir. 2006) (a copy of this case is provided in the Evidence Appendix as Exhibit A). In that case, a claim included the limitation "an adjustable dynamic, live loaded seat." The district court interpreted the term "adjustable" to mean "not limited by any time, place, manner, or means of adjustment." The Federal Circuit reversed, noting that "[t]he district court's construction of 'adjustable,' renders that limitation nearly meaningless. This court finds it difficult, if not impossible, to imagine any mechanical device that is not 'adjustable,' under the ordinary meaning of the term adopted by the district court. Almost any mechanical device undergoes change (for instance, when dismantled to replace worn parts) when no consideration is given to the 'time, place, manner, or means of adjustment." *Id.* at 1379.

In the present case, any orifice will remain at a particular size or location for some snapshot of time. Even the iris of the human eye may remain at a particular size in steady light conditions, or in the extreme, upon death. Interpreting the term "fixed orifice" to include such fleeting instances where a particular size is held would render the term "fixed" meaningless in the claims, and would be contrary to the holding in *Curtiss-Wright*. An iris valve is clearly variable, not fixed. The use of an iris valve

introduces contaminants into the system because a feedback loop is created, constantly making minor adjustments to the size of the iris valve and reducing the stability of the system.

Lastly, the Final Office Action then argues that Shinozuka's "variable orifice" should be treated as reading upon a "fixed orifice" because "[w]hen the structure recited in the references is substantially identical to that of the claims, claimed properties or functions are presumed to be inherent. MPEP 2112.01." Applicant respectfully submits that the Examiner has misapplied this section of the MPEP. Indeed, items which are structurally equivalent are presumed to have the same functions and/or properties. However, in this case the structures are quite different. In one instance, the structure is capable of altering its internal size when in another instance it is not capable of altering its internal size. The fact that a variable orifice could be placed into a single position and kept there reflects a potential functional equivalence between the structures, but not a structural one. In other words, while the iris valve may be capable of being substituted for a fixed orifice as it may perform the same "intended use", that does not make it an identical structure. As such, M.P.E.P. 2112.02 is misapplied in this instance.

Indeed, overall, the Examiner appears not to have altered his rejections in any significant manner after the remand from the board. The Examiner still has failed to fully analyze the declaration to determine the meaning of the term "fixed orifice." The Examiner still fails to address arguments made by Applicant in the Appeal Brief as to the insufficiency of the analysis of the declaration and as to the Examiner's purported evidence for the meaning of the term. The Examiner also essentially

reiterates the rejections using Shinozuka that have already been addressed by the Applicant. As such, Applicant continues to maintain that the Board should overturn the rejections.

Respectfully submitted,
BEYER WEAVER LLP

/Adrienne Yeung/
Adrienne Yeung
Registration No. 44,000

Beyer Weaver LLP
P.O. Box 70250
Oakland, CA 94612-0250
Attorneys for Appellant

# APPENDIX A

438 F.3d 1374, 77 U.S.P.Q.2d 1988
**(Cite as: 438 F.3d 1374)**

**H**

Briefs and Other Related Documents
**Curtiss-Wright** Flow Control Corp. v. Velan, Inc.C.A.Fed.,2006.

United States Court of Appeals,Federal Circuit.

**CURTISS-WRIGHT** FLOW CONTROL CORP., Plaintiff-Appellee,
v.
VELAN, INC., Defendant-Appellant.

**No. 05-1373.**

Feb. 15, 2006.

**Background:** Owner of patent for coke drum deheading system sued competitor for infringement. The United States District Court for the Western District of Texas, Orlando L. Garcia, J., granted preliminary injunction for owner, and competitor appealed.

**Holding:** The Court of Appeals, Rader, Circuit Judge, held that claim limitation, that live-loaded valve seat be "adjustable," was not properly construed.

Vacated and remanded.

West Headnotes

**[1] Patents 291 ⇐324.54**

291 Patents
291XII Infringement
291XII(C) Suits in Equity
291k324 Appeal
291k324.54 k. Presumptions and Discretion of Lower Court. Most Cited Cases
Grant of preliminary injunction for patent infringement plaintiff is reviewed for abuse of discretion. 35 U.S.C.A. § 283.

**[2] Patents 291 ⇐324.5**

291 Patents
291XII Infringement
291XII(C) Suits in Equity
291k324 Appeal
291k324.5 k. Scope and Extent of Review in General. Most Cited Cases
District court's patent claim construction is reviewed without deference.

**[3] Patents 291 ⇐167(1)**

291 Patents
291IX Construction and Operation of Letters Patent
291IX(B) Limitation of Claims
291k167 Specifications, Drawings, and Models
291k167(1) k. In General. Most Cited Cases
Specification is single best guide to meaning of patent claim term.

**[4] Patents 291 ⇐165(5)**

291 Patents
291IX Construction and Operation of Letters Patent
291IX(B) Limitation of Claims
291k165 Operation and Effect of Claims in General
291k165(5) k. Construction of Particular Claims as Affected by Other Claims. Most Cited Cases
Patent construction doctrine of "claim differentiation " refers to presumption that independent claim should not be construed as requiring limitation added by dependent claim.

**[5] Patents 291 ⇐165(5)**

291 Patents
291IX Construction and Operation of Letters Patent
291IX(B) Limitation of Claims

© 2006 Thomson/West. No Claim to Orig. U.S. Govt. Works.

291k165 Operation and Effect of Claims in General
291k165(5) k. Construction of Particular Claims as Affected by Other Claims. Most Cited Cases
Two patent claims with different terminology can define exact same subject matter; doctrine of claim differentiation is guide, not rigid rule.

**[6] Patents 291 ⚿165(5)**

291 Patents
291IX Construction and Operation of Letters Patent
291IX(B) Limitation of Claims
291k165 Operation and Effect of Claims in General
291k165(5) k. Construction of Particular Claims as Affected by Other Claims. Most Cited Cases
Relevant considerations when applying doctrine of claim differentiation to two independent patent claims are: (1) need to avoid construction that would render additional, or different, language in another independent claim superfluous, and (2) need to avoid broadening claims beyond their correct scope.

**[7] Patents 291 ⚿101(3)**

291 Patents
291IV Applications and Proceedings Thereon
291k101 Claims
291k101(3) k. Limitations in General. Most Cited Cases
Correct construction of limitation in patent claim for coke drum deheading system, that live-loaded valve seat be "adjustable," had to take into consideration specification's explanation that purpose of invention was to allow seat adjustment during drum operation and without removal of head unit.

**Patents 291 ⚿328(2)**

291 Patents
291XIII Decisions on the Validity, Construction, and Infringement of Particular Patents
291k328 Patents Enumerated
291k328(2) k. Original Utility. Most Cited Cases
6,565,714. Construed.

**Patents 291 ⚿328(2)**

291 Patents
291XIII Decisions on the Validity, Construction, and Infringement of Particular Patents
291k328 Patents Enumerated
291k328(2) k. Original Utility. Most Cited Cases
6,660,131. Cited.

***1375** Mark M. Supko, Crowell & Moring LLP, of Washington, DC, argued for plaintiff-appellee. With him on the brief were Mark H. Neblett and John R. Perkins, Jr.
Willem G. Schuurman, Vinson & Elkins L.L.P., of Austin, Texas, argued for defendant-appellant. With him on the brief were Michael J. Smith, Adam V. Floyd, Michael A. Valek and H. Kenneth Prol.

Before RADER, Circuit Judge, FRIEDMAN, Senior Circuit Judge, and DYK, Circuit Judge.
RADER, Circuit Judge.
The United States District Court for the Western District of Texas issued a preliminary injunction in favor of **Curtiss-Wright** Flow Control Corporation (**Curtiss-Wright**). After construing claims of U.S. Patent No. 6,565,714 (the '714 patent), the trial court determined that **Curtiss-Wright** had shown a likelihood of success on the merits of its infringement action against Velan, Inc. ***Curtiss-Wright** Flow Control Corp. v. Velan, Inc.*, Civil Action No. SA-04-CA-1157-OG, slip op. at 18 (W.D.Tex.2005) (*Preliminary Injunction Order* ). Because the district court erred in its construction of the term "adjustable," this court vacates the preliminary injunction and remands.

I.

As described in the '714 patent, petroleum refineries recover valuable products from the heavy residual oil that is a byproduct of the refining process. '714 patent, col. 1, ll. 20-60. That recovery process is

© 2006 Thomson/West. No Claim to Orig. U.S. Govt. Works.

known as "delayed coking." *Id.* Delayed coking heats the liquid petroleum residue to very high temperatures and then feeds the heated residue into a "coke drum." In the drum, cracking and polymerization converts the liquid residue into valuable distillates and solid coke. *Id.* A typical coke drum might be 120 feet high and 30 feet in diameter with openings at the top and bottom. These openings have large, flanged metal plates known as "heads." When the drum is full, the operators purge the byproducts and "de-head" the drum. During de-heading, the operators manually remove the top and bottom heads to remove the solid coke. *Id.* De-heading is both difficult and dangerous. Coke drums are very hot and the heads can weigh four tons. During removal, heated residues and coke can spill out and injure nearby workers. *Id.*

**Curtiss-Wright's** '714 patent claims a system and a method that de-heads the coke drum without manually removing the heads. '714 patent, col. 3, ll. 45-60. Instead, the de-heading system of the '714 patent includes a dual seated, linear motion, blind gate valve, i.e., a "de-header valve." *Id.* The upper and lower seats have aligned circular openings that make a single hole at, for example, the bottom of the coke drum. The blind moves linearly, horizontally between the two seats to open and close the hole at the base of the coke drum.

Figure 2 of a related patent, U.S. Patent No. 6,660,131 (the '131 patent), [FN1] shows this type of de-header valve 12 attached to a coke drum 18. Figure 11 of the '131 patent, also reproduced below, shows the internal details of the de-header valve 12. [FN2] In these figures, the de-header valve 12 has a body 46 and upper and lower seats, ***1376** 34 and 38. The upper and lower seats 34 and 38 are large metal rings whose openings line up to form a single hole. The upper seat 34 is a dynamic, live loaded seat, while the lower seat 38 is static. '714 patent, col. 8, ll. 51-62. Although not shown in figure 2, the blind, element 106 in figure 11, moves laterally within element 54. When the blind moves to the left, it opens the hole between seats 34 and 38. Thus, when the circular opening in the blind lines up with the openings in the seats, the blind is open.

FN1. Figure 2 of the '131 patent is the formal version of figure 2 of the '714 patent , which was issued with informal figures. The two figures do not differ in any material respect.

FN2. Figure 11 of the '131 patent is the formal version of figure 8 of the '714 patent . The two figures do not differ in any material respect.

© 2006 Thomson/West. No Claim to Orig. U.S. Govt. Works.

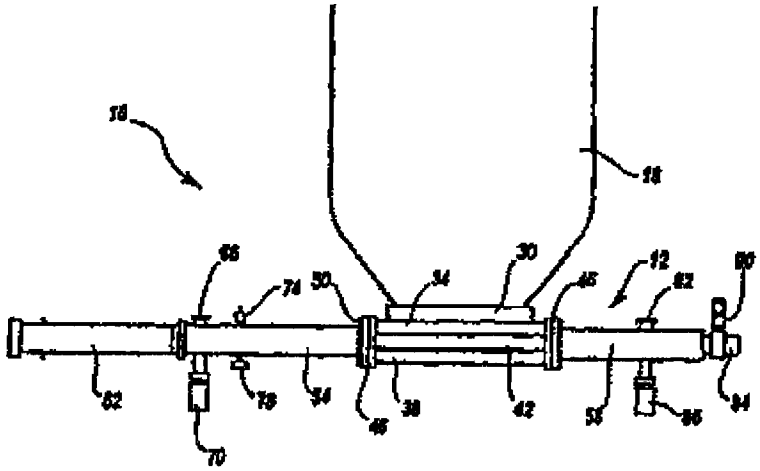

Fig. 2

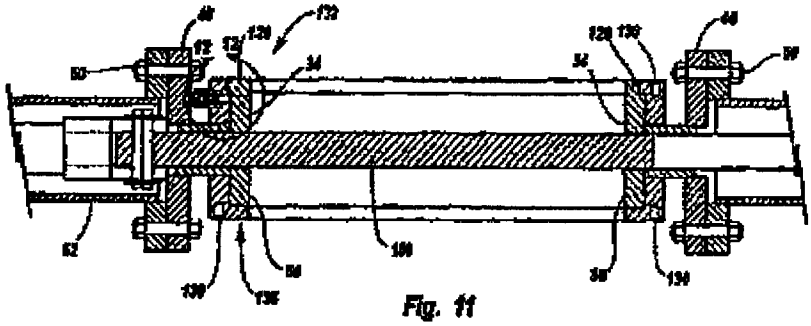

Fig. 11

The '714 patent describes the upper and lower seats, with reference to figure 2, as follows:

In the preferred embodiment, the static seat is a one piece seat that is securely ***1377** fastened to de-header valve 12 and is preferably non-adjustable. ... In contrast to the static seat, dynamic, live loaded seat is a moveable and adjustable seat that is energized from without the process stream via live seat adjustment mechanism. The function of the dynamic, live loaded seat is to provide point to point fine tuning of the system, and particularly the blind as it is sealed between upper and lower seats 34 and 38.

'714 patent, col. 9, ll. 9-19. Thus, as the blind moves between the top and bottom seats, the dynamic, live loaded seat (closest to the drum interior) exerts force downward on the blind. The invention adjusts that force to allow linear movement of the blind between the seats while keeping a tight seal on the drum. *See id.* at col. 4, ll. 17-67. In the preferred embodiment, the invention accomplishes this vital adjustment with an adjustment mechanism (the circled element in the

© 2006 Thomson/West. No Claim to Orig. U.S. Govt. Works.

upper-left-hand portion of figure 11). *Id.* at col. 13, ll. 43-50. The adjustment mechanism of the '714 patent functions to facilitate operation of the de-header system. *See, e.g., id.* at col. 14, ll. 50-55.

On December 16, 2004, **Curtiss-Wright** sued Velan, claiming that a Velan valve infringed the '714 patent. On March 1, 2005, **Curtiss-Wright** sought a preliminary injunction to prevent Velan from launching a new valve at an upcoming industry conference, alleging infringement of claims 14, 33 and 36 of the '714 patent. Velan's valves do not include adjustment mechanisms like those disclosed in the '714 patent. Instead, Velan's valves include upper dynamic, live loaded seats with internal biasing springs. These springs modulate the pressure on the seat to allow the blind to move. Velan designed its seats to allow replacement of these biasing springs. To change the biasing force in Velan's dynamic, live loaded seats, an operator must replace these internal biasing springs. Thus, Velan's system envisions removal of the valves from the coke drum. *Preliminary Injunction Order*, slip op. at 16-17.

Claim 14 of the '714 patent recites:

14. A coke drum bottom de-heading system comprising:
at least one coke drum containing manufactured coke therein, said at least one coke drum having a flanged bottom orifice;
a de-header valve removably coupled to said coke drum to facilitate the removal of said coke from said at least one coke drum by de-heading said at least one coke drum, said de-header valve comprising:
a main body having an [sic] flanged orifice therein for removably coupling said de-header valve to said flanged bottom orifice of said coke drum;
an upper and lower bonnet coupled to said main body;
an *adjustable* dynamic, live loaded seat coupled to said main body;
a static seat coupled to said main body in opposition to said dynamic, live loaded seat; and
a blind coupled to said main body and actuated by an actuator, said blind capable of moving in a bi-directional manner within said de-header valve between said dynamic, live loaded and static seats to control the opening and closing of said de-header valve, said blind providing a seal between said dynamic, live loaded seat and said static seat, said coke drum is de-headed, thus preparing said coke drum for the removal of said coke, by actuating said blind from a closed, sealed position, to an open position thereby causing said coke that has accumulated on said blind and within ***1378** said valve to be sheared from said blind.

'714 patent, claim 14 (emphasis added).

According to the trial court, the term "adjustable" in claim 14 means that the bias force on the live loaded seat can be changed in a manner that is "not limited by any time, place, manner, or means of adjustment." *Preliminary Injunction Order*, slip op. at 16. Based on that construction, the trial court concluded that **Curtiss-Wright** had shown a reasonable likelihood of success on the merits of its infringement claim. *Id.*, slip op. at 18. The trial court observed that Velan can "adjust" the bias force by replacing the springs in its de-header valve. *Id.* After further considering irreparable harm, the balance of hardships, and the public interest, the district court granted **Curtiss-Wright's** motion for a preliminary injunction. *Id.*, slip op. at 21. Velan appeals.

## II.

[1][2] "The grant of a preliminary injunction under 35 U.S.C. § 283 is within the discretion of the district court. This court reviews a preliminary injunction decision for an abuse of discretion." *Gillette Co. v. Energizer Holdings, Inc.*, 405 F.3d 1367, 1370 (Fed.Cir.2005) (citing *Novo Nordisk of N. Am., Inc. v. Genentech, Inc.*, 77 F.3d 1364, 1367 (Fed.Cir.1996)). "The court's determination can be overturned only on a showing that it abused its discretion, committed an error of law, or seriously misjudged the evidence." *We Care, Inc. v. Ultra-Mark Int'l Corp.*, 930 F.2d 1567, 1570 (Fed.Cir.1991) (citing *H.H. Robertson, Co. v. United Steel Deck, Inc.*, 820 F.2d 384, 387 (Fed.Cir.1987)). This court reviews claim construction without deference. *Collegenet, Inc. v. Applyyourself, Inc.*, 418 F.3d 1225, 1230 (citing

© 2006 Thomson/West. No Claim to Orig. U.S. Govt. Works.

*Cybor Corp. v. FAS Techs., Inc.*, 138 F.3d 1448, 1456 (Fed.Cir.1998) (en banc)); *Markman v. Westview Instruments, Inc.*, 52 F.3d 967, 979 (Fed.Cir.1995), *aff'd*, 517 U.S. 370, 116 S.Ct. 1384, 134 L.Ed.2d 577 (1996).

The trial court's claim construction followed a logical path. The court first set forth the ordinary meaning of "adjustable": "capable of making a change to something or capable of being changed." *Preliminary Injunction Order*, slip op. at 10. The court then determined that a narrower construction of "adjustable" would be inconsistent with other claims in the '714 patent, which recite an adjustment mechanism that allows adjustment while the device is in use or operation. *Id.* at 11-13. In other words, the district court relied on claim differentiation during its claim construction. Finally, the district court explained that any construction of the term "adjustable" that requires the presence of the adjustment mechanism disclosed in the '714 patent would be an impermissible narrowing of that claim term to the structure of the preferred embodiment.

While logical, this chain of reasoning errs because it places too much emphasis on the ordinary meaning of "adjustable" without adequate grounding of that term within the context of the specification of the '714 patent. Moreover, to the extent this reasoning relies on claim differentiation, it misapplies that limited tool of claim construction.

[3] This court recently reiterated that the specification is the single best guide to the meaning of a claim term. *Phillips v. AWH Corp.*, 415 F.3d 1303, 1315 (Fed.Cir.2005) (en banc) (citing *Vitronics Corp. v. Conceptronic, Inc.*, 90 F.3d 1576, 1582 (Fed.Cir.1996)). In this case, the '714 patent's specification describes the deficiencies of the prior art, including the conventional requirement of removing the entire head unit from the coke drum during de-heading:

***1379** [The prior art] assemblies or devices require that the head unit be completely removed from the flange portion of the coke drum after each coking cycle and prior to the purging of the coke from the coke drum. This creates an extreme hazard to workers and provides an inefficient and time consuming procedure.

'714 patent, col. 2, ll. 49-54. The '714 patent specification further extols this invention for overcoming these deficiencies of the prior art:Another critical aspect of the present invention is the ability to de-head the coke drum without having to remove the head unit, and to do so at a remote location with little or no manual requirements.

*Id.* at col. 4, ll. 13-17. The '714 patent then associates the adjustability of the live loaded seat with that critical aspect of the invention. In other words, the patent stresses that adjustment occurs during operation and without removal of the head unit:In a normal coking process, extreme temperatures and pressures are present. Any variation in temperature between the upper and lower surfaces of the blind can cause the blind to bow. If the bowing is allowed to progress or continue, there is a danger in breaking the seal created between [the] upper and lower seats and [the] blind, which could cause damage to the system and upset the manufacturing process. However, the ability of the present invention to adjust the load exerted on [the] blind, utilizing the dynamic, live loaded seat and its adjustment mechanism, provides a way to compensate for or modulate any existing bowing that might occur. By increasing the applied load of the dynamic, live loaded seat on [the] blind, the bowing is substantially eliminated ....

*Id.* at col. 11, ll. 7-20 (reference numbers omitted). With respect to an alternative embodiment with multiple live loaded seats at different points along the blind, the specification explains:By allowing point to point adjustability, the system is capable of being fine tuned to decrease the chances of unwanted leaks within the system. For example, if the system were leaking at one location, any one of, or multiple, dynamic seats could be adjusted to compensate and seal the leak.

*Id.* at col. 15, ll. 33-37.

Thus, the specification of the '714 patent consistently, and without exception, describes adjustment that occurs during operation of the

© 2006 Thomson/West. No Claim to Orig. U.S. Govt. Works.

de-header system. The districts court's construction of "adjustable," which includes a structure that requires dismantling of the valve to perform the adjustment, finds no support in the overall context of the '714 patent specification.

Moreover, the district court's construction of " adjustable" renders that limitation nearly meaningless. This court finds it difficult, if not impossible, to imagine any mechanical device that is not "adjustable," under the ordinary meaning of that term adopted by the district court. Almost any mechanical device undergoes change (for instance, when dismantled to replace worn parts) when no consideration is given to the "time, place, manner, or means of adjustment."

This court commends the district court's reluctance to narrow the claims to the preferred embodiment. In this instance, however, that care is admirable but misplaced. This case does not evince a situation where a party is attempting to import a limitation from the specification into the claims. Claim 14 already contains the "adjustable" limitation. Thus, the claim construction task requires this court to discern the meaning of that term in the context of this invention and field of art. ***1380** The specification provides that context and substantial guidance on the meaning of "adjustable." In light of the specification, the term "adjustable" means that the dynamic, live loaded seat can be adjusted while the de-heading system of claim 14 is in use.

The district court buttressed its broad construction of "adjustable" with a comparison to other independent claims in the '714 patent, specifically claims 1 and 18. Those claims recite an adjustment mechanism. *See Preliminary Injunction Order,* slip op. at 11-13. As the district court explained: [B]ecause Claims 1 and 18 specifically describe an embodiment possessing [an] external seat adjustment mechanism and Claim 14 does not, the only meaning to be derived from Claim 14 is that it encompasses all devices that are simply "adjustable, " or capable of changing the bias force exerted on the sliding gate by the dynamic, live loaded seat, regardless whether these devices possess an adjustment mechanism or not and regardless of the means or time in which this adjustment is made. *Id.* Thus, without using the formal label, the district court relied on claim differentiation to reach its broad meaning. The district court's misapplication of that claim construction tool is understandable given the variability of explanations of claim differentiation.

[4] In the most specific sense, "claim differentiation " refers to the presumption that an independent claim should not be construed as requiring a limitation added by a dependent claim. *See Nazomi Commc'ns, Inc. v. Arm Holdings, PLC.,* 403 F.3d 1364, 1370 (Fed.Cir.2005) ("[C]laim differentiation 'normally means that limitations stated in dependent claims are not to be read into the independent claim from which they depend.' " (quoting *Karlin Tech., Inc. v. Surgical Dynamics, Inc.,* 177 F.3d 968, 971-72 (Fed.Cir.1999))); *see also Phillips,* 415 F.3d at 1314-15 (explaining the presumption without invoking the "claim differentiation" label). Thus, the claim differentiation tool works best in the relationship between independent and dependent claims. *See Liebel-Flarsheim Co. v. Medrad, Inc.,* 358 F.3d 898, 910 (Fed.Cir.2004) (citing *Sunrace Roots Enter. Co. v. SRAM Corp.,* 336 F.3d 1298, 1302-03 (Fed.Cir.2003)). Indeed the statute stresses that a dependent claim must add a limitation to those recited in the independent claim. *See* 35 U.S.C. § 112, ¶ 4 (2000) ("[A] claim in dependent form shall contain a reference to a claim previously set forth and then specify *a further limitation of the subject matter claimed.*") (emphasis added). Thus, reading an additional limitation from a dependent claim into an independent claim would not only make that additional limitation superfluous, it might render the dependent claim invalid.

[5] Beyond the independent/dependent claim scenario, this court has characterized claim differentiation more generally, i.e., as the " presumption that each claim in a patent has a different scope." *Versa Corp. v. Ag-Bag Int'l Ltd.,* 392 F.3d 1325, 1330 (Fed.Cir.2004) (quoting *Comark Commc'ns, Inc. v. Harris Corp.,* 156 F.3d 1182, 1187 (Fed.Cir.1998)). Different claims with different words can, of course, define different subject matter within the ambit of the invention. On the other hand, claim drafters can also use

© 2006 Thomson/West. No Claim to Orig. U.S. Govt. Works.

different terms to define the exact same subject matter. Indeed this court has acknowledged that two claims with different terminology can define the exact same subject matter. *Tandon Corp. v. U.S. Int'l Trade Comm'n,* 831 F.2d 1017, 1023 (Fed.Cir.1987); *Hormone Research Found. v. Genentech, Inc.,* 904 F.2d 1558, 1567 n. 15 (Fed.Cir.1990) ("It is not unusual that separate claims may define the invention using different terminology, especially where (as here) independent ***1381** claims are involved."). In this context, this court has cautioned that "[c]laim differentiation is a guide, not a rigid rule." *Laitram Corp. v. Rexnord, Inc.,* 939 F.2d 1533, 1538 (Fed.Cir.1991).

[6] With those precedents in mind, this court observes that two considerations generally govern this claim construction tool when applied to two independent claims: (1) claim differentiation takes on relevance in the context of a claim construction that would render additional, or different, language in another independent claim superfluous; and (2) claim differentiation "can not broaden claims beyond their correct scope." *Fantasy Sports Props. v. Sportsline.com,* 287 F.3d 1108, 1115-16 (Fed.Cir.2002) (quoting *Kraft Foods, Inc. v. International Trading Co.,* 203 F.3d 1362 (Fed.Cir.2000)). In this case, both of those considerations weigh against the district court's construction of "adjustable."

[7] First, reading "adjustable" to mean adjustable " on the fly" during de-heading does not render the recitation of an adjustment mechanism in other claims superfluous. Even if "adjustable" were synonymous with the presence of an adjustment mechanism, this court perceives no redundancy because the claims that recite the presence of such a mechanism do not include the "adjustable" limitation. *Compare* '714 patent, claims 1 and 18 *with* '714 patent, claim 14. As noted before, a patentee may define the same subject matter with claims having different terminology. *Mycogen Plant Sci. v. Monsanto Co.,* 243 F.3d 1316, 1329 (Fed.Cir.2001). Moreover, in-use adjustability does not necessarily mean the same thing as the presence of an adjustment mechanism. After all, an adjustment mechanism might be present but not useable during de-heading. To be clear, this court does not venture to construe the scope of the adjustment mechanism limitation in claims 1 and 18, but merely observes that the language of claim 14, as properly construed, does not appear to be commensurate with the language in claims 1 and 18. Thus, while the district court may have been correct that a device encompassed by claim 14 of the '714 patent need not have an adjustment mechanism, it went too far in completely eliminating any constraints on the "adjustable" limitation. Moreover, the district court's construction actually creates a redundancy: if " adjustable" means adjustable at any time and in any way, it is hard to imagine any meaning for the term because without limitations on time or manner of adjustment, all structures are "adjustable."

Second, relying on the claim differentiation presumption in this case contradicts the correct meaning of claim 14. As discussed above, the specification stresses that the invention is " adjustable" during de-heading. Any construction to the contrary is not consistent with the overall context of this invention and this field of art as described in the specification.

Before the district court, the dispute over **Curtiss-Wright's** showing of a likelihood of infringement centered on the recognition that Velan's valves must be dismantled for adjustment. Velan argued that its de-heading system did not infringe because the only way to adjust their live loaded seat required removal of the seat to replace its internal biasing springs. The district court rejected that argument because its construction of "adjustable" placed no meaningful limits on that term. Because the district court erred in its claim construction, its subsequent infringement analysis in the context of **Curtiss-Wright's** motion for a preliminary injunction was flawed. Accordingly, the district court's grant of the preliminary injunction was an abuse of discretion.

## CONCLUSION

Because the district court erred in its claim construction, this court vacates the ***1382** district court's grant of **Curtiss-Wright's** motion for a

© 2006 Thomson/West. No Claim to Orig. U.S. Govt. Works.

preliminary injunction and remands for action consistent with the opinion.

COSTS

Each party shall bear its own costs.

*VACATED and REMANDED*

C.A.Fed.,2006.
Curtiss-Wright Flow Control Corp. v. Velan, Inc.
438 F.3d 1374, 77 U.S.P.Q.2d 1988

Briefs and Other Related Documents (Back to top)

- 2005 WL 1843179 (Appellate Brief) Reply Brief of Defendant-Appellant Velan, Inc. (Jul. 15, 2005) Original Image of this Document (PDF)
- 2005 WL 1923489 (Appellate Brief) (Corrected) Brief of Plaintiff-Appellee Curtiss-Wright Flow Control Corp. (Jul. 08, 2005) Original Image of this Document (PDF)
- 2005 WL 1486731 (Appellate Brief) Brief of Defendant-Appellant Velan, Inc. (Jun. 02, 2005) Original Image of this Document with Appendix (PDF)
- 05-1373 (Docket) (May. 03, 2005)

END OF DOCUMENT

© 2006 Thomson/West. No Claim to Orig. U.S. Govt. Works.